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Supply and demand for Specialists medical Manpower in India

1983-84

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SUPPLY AND DEMAND FOR SPECIALISTS MEDICAL MANPOWER IN INDIA, 1983-84

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PREFACE

India could be proud of the rapid strides made by her in the development of medical manpower. This development, however, has not been entirely free from problems. Though, there has been considerable increase in numbers, yet the disparities in their distribution continue to persist. The imbalances between the supply of and the demand for trained medical manpower has been a matter of deep concern. While the real need appears to be fantastically large, the effective demand has been relatively small. Another issue that has been a source of anxiety to the policy makers and administrators in this country is with regard to the type of doctor the community needs in terms of his education, its duration, appropriate teaching methodologies etc. Despite serious efforts that are being made to ameliorate the situation, there has been a growing demand for specialist medical manpower from a number of developing countries in Africa and Middle East. Notwithstanding the fact that our internal needs are of highest priority, these requests also deserve serious consideration from the economic and political points of view. It is in this context that the present study was undertaken amongst four categories of medical specialists with a view to assess the gaps that exist in the supply of and demand for these categories of manpower to provide a basis for decision-making. Though the estimates are entirely based on secondary data of varying degrees of reliability, the ultimate picture that has emerged could be relied upon, despite the fact that no confidence limits exist.

The Department of Statistics and Demography of this Institute has taken pains in producing this useful report which happens to be the third in the series. It is hoped that they would continue to contribute to this vital area of medical manpower such that the policy makers, administrators, researchers and others concerned with this have meaningful material for use.

Sharad Kumar
Director

New Delhi,
15th May, 1978

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CHAPTER I

INTRODUCTION

When India became independent, medical manpower situation in India presented a dismal picture. The Government of India in order to uplift the socio-economic status and quality of life of the Indian people embarked on massive development of health services, as a part of which development of medical manpower acquired high priority. Consequently, the number of medical colleges in India increased from 22 in 1947 to 106 in 1977. The number of admissions increased six-fold and out-turn recorded a steep increase of about eleven-fold. The stock of doctors of modern system of medicine in the country increased from 59,000 in 1960 to about 200,000 in 1975.

During the same period, post-graduate medical education also underwent rapid changes. Before independence, hardly any emphasis was laid on post-graduate medical education in India. The bulk of those who wished to qualify in various specialties obtained the required training abroad. During the successive five year plans, launched after independence, systematic efforts had been made to ameliorate the situation. As a result there were 79 institutions imparting post-graduate medical education in India by the end of third Five Year Plan. The same were 96 in the year 1975-76. The admission capacity of M.D. programmes in various specialties increased to about 1,560 in 1974. The admission capacity of M.S. degree programmes increased to about 1,077 in 1974. The out-turn of qualified specialists from these programmes was of the order of 824 and 587 respectively per year in 1974. In addition, a number of diploma courses also came into existence for training a large number of specialists in various medical specialties.*

Thus, while the medical manpower situation underwent a great change, it also led to a number of problems namely,

i. there has not been corresponding increase in the opportunities for employment leading to unemployment amongst doctors, migration to other countries etc.;

*The data presented here is extracted from "Health Sector of India - An Overview," National Institute of Health and Family Welfare, Technical Report 2, 1977.

ii. considerable increase in demand for post-graduate education leading to underemployment of qualified specialists and their inclination to serve abroad;

iii. considerable variations in quality of under-graduate as well as post-graduate education from institution to institution and a gap between the kind of doctors the country needed and the kind produced; and

iv. considerable disparities in their distribution and availability between rural and urban areas and between less developed and more developed areas resulting in concentration of medical manpower in certain pockets.

The Government of India is engaged in solving many of these problems to suit local needs. Any attempt towards such an effort necessarily requires a comprehensive examination of the availability of manpower, the possible demand for the same such that the future plans, programmes and activities could suitably be prepared. This report deals with estimation of supply of and demand for four specialist categories of medical manpower, namely, medicine, surgery, obstetrics and gynaecology and paediatrics.

Objectives

The present study is carried out amongst four specialist categories of medical manpower, namely, Physician, Surgeon, Paediatrician, Obstetrician and Gynaecologist with the following objectives:

i. To estimate the supply of and the demand for each of the four specialist categories of medical manpower during 1979-84.

ii. To estimate the gap between demand and supply of each of the four specialist categories of medical manpower by 1983-84.

Methodology

Definitions

The definitions, employed in earlier studies, [1, 2] on demand and supply have been utilized, wherever applicable in the present study. These are:

Stock/Supply: The term stock/supply includes the work force and those unemployed but seeking employment. It excludes the retired specialists.

Demand: It is defined to include the work force and the new employment opportunities generated during the year.

Specialists: Any individual possessing in modern system of medicine either a diploma or post-graduate degree in the concerned specialty.

Physician: This category includes those possessing post-graduate diploma or degree in general medicine after M. B. B. S.

Surgeon: This category includes those possessing post-graduate degree or diploma in general surgery, orthopaedic surgery and ENT surgery after M. B. B. S.

Obstetrician and Gynaecologist: This category includes those possessing post-graduate degree or diploma in Obstetrics and Gynaecology after M. B. B. S.

Paediatrician: This category includes those possessing post-graduate degree or diploma in paediatrics after M. B. B. S.

The present study is carried out based on secondary data available with a number of governmental and non-governmental organizations. For this purpose, organizations such as Ministry of Health and Family Welfare, Directorate General of Employment and Training (DGE&T), Council of Scientific and Industrial Research (CSIR), Institute of Applied Manpower Research (IAMR), Medical Council of India (MCI) etc. were visited and the available data were collected. The data for certain organizations like ESIC, Railways and Armed Forces were also collected since these are the three major organizations which provide medical care facilities to a large clientele. In addition, the information on the stock of different specialist categories under study was collected from the respective professional associations in the country. Public Sector Undertakings also provide medical care facilities to their clientele but these have not been included in this study due to the constraints of time.

The medical manpower statistics available in India suffer from a number of limitations like any other category of health statistics such as accuracy and completeness. Definitions adopted and methods of classification and tabulation employed therein also pose a serious limitation. Since any effort to collect primary data on the subject requires considerable amount of time (which is not available), the available data are suitably sifted, synthesised and used for estimation of stock and demand. Wherever found necessary, corrections for coverage were applied. In doing so, certain assumptions, which are essential but simple and fairly valid have been made.

The methodologies developed for estimation of supply and demand for Anaesthetists have been adapted for estimation of supply and demand of these four specialist categories under study, after suitable modifications. The same are discussed in detail elsewhere in this report under each of the relevant sections.

CHAPTER II

ESTIMATION OF SUPPLY

The estimation of stock of a particular category of manpower requires data with regard to their numbers classified by their educational qualifications and specialty. However, the published data on the basis of which stock of doctors has been estimated in a number of earlier studies, do not give specialty-wise distribution of the stock. The various estimates of stock of doctors of modern system of medicine in India provided by different organizations such as Medical Council of India, Council of Scientific and Industrial Research, Institute of Applied Manpower Research, Planning Commission etc. vary from each other due to a number of factors. The MCI does not provide information about educational qualifications of registered doctors except for the teachers in medical colleges. The DGE&T provides the information on different categories of employees in public and private sectors, every alternate years. They, however, do not provide uniform information based on their educational qualifications in different specialties.

With these inherent limitations in the data, three methods have been used for estimation of stock of each of the four categories of specialists, namely, two direct methods and one indirect method.

Direct Method I

Under direct method of estimation of supply, the data provided by the Professional Associations (List of Associations is in Appendix I) have been utilized.

The responses obtained from different Professional Associations with regard to the number of doctors registered with them, after acquiring their post-graduate qualifications in the subject/specialty as of 1977, are presented in Table 1.

The basic limitations inherent in the data provided by Professional Associations are three-fold, namely,

i. all the doctors in the country might not be members of the associations and hence do not find place in their lists;

ii. certain persons might have migrated or retired, but their names might still be found in the lists; and

iii. certain professionals might not possess post-graduate educational qualifications to pursue the concerned specialist activity but are members of a Professional Association.

The magnitude of such factors is not available. However, awareness of the same becomes relevant for judicious use of the estimates of stock obtained based on such data.

In order to estimate the likely supply of each of the specialists during the plan period 1979-80 to 1983-84, the data on stock of each specialist category obtained in 1977 are adjusted for their mortality (0.7%) and retirement (0.3%)[3]. The additions to these stock during 1978-83 are worked out based on out-turn of data after adjustment for mortality and withdrawal. The same are presented in Table 2.

While estimating the out-turn for different years, it is assumed that there will not be any increase in the number of institutions providing post-graduate education in the specialties under study and the admission capacity will remain the same during 1979-84. The out-turn data used here for the years 1978 to 1983 have also been adjusted for mortality using age specific mortality rate of 3.35 per 1000 in the age group 20-30 years.

It is also assumed that in-migration and out-migration of these specialists will have no significant effect on the stock since the difference between the two (out-migration and in-migration) for each of the specialties under study was observed to be much less than 0.5 per cent of the total stock[4]. This becomes particularly negligible in the present context of ban that exists on their out-migration.

Thus, it is estimated that by 1983-84 there will be 7,179 Surgeons including ENT and Orthopaedic, 5,046 Obstetricians and Gynaecologists and 2,929 Paediatricians. The estimate for Physicians could not be worked out due to non-availability of data regarding total number registered in this specialty.

Direct Method II

Directorate General of Employment and Training (DGE&T) publishes occupational pattern of employees in public and private sector employment bi-annually, in alternate years.

The data, thus available for private sector doctors in 1971 and public sector doctors in 1972 are taken as base. Adopting the methodology employed in the first method, the estimates of stock of different specialist categories have been derived in this section.

The DGE&T data for the years 1971 and 1972 for private and public sector, respectively, after adjustment for mortality and retirement indicated that there were 34,642 doctors in employment in 1972. Their distribution in various specialties under study, as classified by DGE&T, is presented in Table 3.

It is to be noted that the specialty-wise distribution of doctors in 1972 as presented in Table 3 includes all doctors, with and without post-graduate qualifications. It is, therefore, necessary that these estimates have to be corrected such that the number with post-graduate qualifications is obtained under each specialty group, so as to conform to the definition of a specialist adopted in the present study.

The DGE&T data gave estimates of total doctors of modern system of medicine and those with post-graduate qualifications as of 1966. Making use of out-turns, in each of the subsequent years of graduates and post-graduates, after correction for mortality, the flow of stocks of these two categories has been constructed upto 1972. Based on these estimates, proportions of doctors with post-graduate qualifications out of total doctors have been worked out for each of the years during 1966-1972. While it was 22 per cent in 1966, it gradually increased to 33.5 per cent in 1972 giving an average annual rate of increase of 5.1 per cent per year during 1966-72. Assuming that this rate of growth is valid for each of the specialties under study, the proportions of doctors with post-graduate qualifications to total doctors within each specialty, as obtained in 1966, have been corrected to obtain the estimates of proportion of different categories of specialists with post-graduate qualifications in 1972 (Table 3). Using these proportions, the stock of specialists of different categories in 1972 has been estimated.

This stock was adjusted for mortality and retirement during 1972-84. Assuming that the admission capacity would not be changed in subsequent years and the age specific mortality rate of 3.35 per 1000 for each of the years, the out-turns for all the years have been determined for 94 post-graduate institutions during 1972-73 and for 96 post-graduate institutions during 1974- onwards.

Thus, it is estimated that there will be 8,702 specialists in medicine, 8,538 in surgery including ENT and Orthopaedics, 5,967 in obstetrics and gynaecology and 2,508 in paediatrics. The same are presented in Table 4.

Indirect Method

The occupational classification of DGE&T provides for a number of groups such as professionals, teachers, administrators etc. For this study, the first two groups were found to be relevant*.

The trend in the number of professionals and teachers in public and private sector employment during 1966-73 is shown in Table 5. It is to be noted that these data include all those with graduate and post-graduate /diplomas in modern system of medicine.

As an initial step, the trend in the number of doctors of modern system of medicine classified under different types of activities was examined in public and private sector employment for the period 1966-72, after adjusting the data for coverage of employees in the surveys. These trends indicated that the number of doctors of modern system of medicine in public sector increased with an average rate of growth 12.5 per cent per year whereas the same in private sector increased with an average growth rate of 4.3 per cent per year during 1967-71. Based on these growth rates, the number of doctors during each of the years 1979-84 in public and private sector employment has been worked out (Table 6).

Professionals

Examination of the stock of professionals in public and private sector employment as a proportion of total doctors indicated that it was about 78 per cent in public sector; and about 69 per cent in private sector which, however, varied from 64.1 per cent to 72.2 per cent. Assuming that the proportion of these professionals to total doctors in public sector and private sector as obtained during 1966-72 would remain constant during 1979-84, the estimates for stock of professionals in both the sectors have been derived. The same are presented in Table 6.

The estimates of number of professionals in public and private sector employment are now further sub-divided into four specialty groups under study. The DGE&T data indicated that 90 to 95 per cent of these professionals were observed to belong to one or the either the four specialties under study in public sector whereas it was 80 to 85 per cent in private sector. Appendix V presents the distribution of these professionals by their specialties, in public and private sectors. Using these distributions, the number of professionals during each of the years 1966-72 is sub-divided into the four specialties under study.

* This inter alia assumes that when once a specialist becomes a health administrator he ceases to be a specialist for the purpose of this study though he/she may be indulging in private practice of his/her specialty.

It is observed that the percentage of doctors having medical specialty gradually increased in both public and private sectors during 1966-72 whereas the same in surgical specialty gradually decreased. This may be because of increased attraction to sub-specialties developed in surgery such as Thoracic surgery, Plastic surgery, Urology etc. which, however, did not form part of "Surgeons" here. The percentage gradually increased for Obstetrics and Gynaecology in public sector. Assuming that the number of medical personnel under each of the specialty groups increased in the same proportion as obtained in 1971 and 1972 for private and public sector employment respectively, the estimates of the stock of doctors in different specialist categories under study have been derived. The same are presented in Table 7.

It may be pointed out that the estimates presented in Table 7 include medical personnel, possessing graduate and post-graduate qualifications. This necessitated appropriate correction so as to obtain the number of these doctors of a particular specialty category with post-graduate qualifications so as to conform to the definitions adopted in the present study.

The data of 1966 survey of the DGE&T presented that 10.7 per cent of the total doctors in medicine possessed post-graudate qualifications in medicine. Further, 12.2 per cent of Surgeons, 43.6 per cent of Obstetricians and Gynaecologists, and 60.7 per cent of Paediatricians had post-graduate qualifications. Such proportions are, however, not available for subsequent years. During this period, it is observed that the proportion of total post-graduates out of total doctors increased at an average rate of 6.5 per cent. It is assumed that this rate of increase is valid within each specialty category.

Thus, assuming that the proportion of doctors with post-graduate qualifications to total doctors in each specialty increase at the same rate as the increase in the proportion of total post-graduates (of all specialties) out of total doctors during 1966-76, the estimates of stock of specialists with post-graduate qualifications have been derived for 1979-84 and presented in Table 8.

Thus, by 1983-84 there will be 16,739 physicians with post-graduate qualifications, 6,065 surgeons, 837 obstetricians and gynaecologists and 125 paediatricians amongst the professionals as classified by DGE&T of public and private sector employment.

Teachers

The estimates for the stock of medical teachers have been derived earlier by Central Bureau of Health Intelligence in 1964 and in 1970[5]. The study conducted in 1970 estimated that 11,710 medical teachers were

in position with 1,978 posts vacant in 95 medical colleges. They had als estimated that the additional requirement would be of the order of 1,505 medical teachers to total sanctioned positions to provide medical education. However, with the increase in the number of medical colleges and post-graduate institutions during 1970-74, the stock of medical teachers increased to 13,063 with 2,209 vacant positions.

Since 1974 there had been no increase in the number of medical colleges, in the number of post-graduate institutions and in their admission capacity. No further increase in educational facilities is envisaged during sixth plan period. Assuming all the sanctioned positions of teachers would have been filled by 1983-84, the stock of medical teachers in 1983-84 is estimated to be 15,272. This estimate includes all categories of teachers, that is, Professors to Tutors and Registrars. Since tutors and registrars need not necessarily possess post-graduate qualifications, the estimate of stock of specialist teachers works out to be 8,782.

The DGE&T estimated the stock of medical teachers in public and private sector employment during 1971-72 as 7,370. This is an under estimation to the extent that all the medical colleges might not have provided the information to them about the employees in their institutions. Secondly, there had been increase in number of medical colleges and post-graduate institutions after 1971. Hence, in order to arrive at a better estimate of stock of medical teachers, the present number of medical colleges with their admission capacity for M. B. B. S. Course and the number of institutions providing post-graduate training with their admission capacity were studied and related it to the staffing pattern recommended by the Medical Council of India in 1976. As an initial step, the 106 medical colleges were classified according to those providing post-graduate training and their admission capacity for M. B. B. S. Course. The same are presented in Table 9.

In addition to these 75 medical colleges, 21 post-graduate institutions were providing post-graduate education in different specialties with total admission capacity 8,160 per year, of which 3,484 were for diploma courses and the rest for degree courses.

The Medical Council of India has recommended 135 teachers per 100 admissions in M. B. B. S. Course; and for every additional 50 admissions, additional staff of five teachers are to be provided. Additional teaching staff will be required in institutions where post-graduate education is also imparted. They recommended that the number of post-graduate teachers to the number of post-graduate degree students admitted per year be maintained as 1:1. These post-graduate departments undertake diploma courses also for which additional teaching staff have not been recommended.

Assuming that all the medical colleges have adopted these recommendations and all the posts would be filled up by 1983-84, it is estimated that there will be a stock of 14,615 medical teachers in 106 medical colleges for under-graduate medical education and 4,676 medical teachers for providing post-graduate education. This gives a total stock of 19,291 medical teachers. Out of this stock, 13,445 are with post-graduate degrees/diplomas. After correction for mortality and retirement, the actual stock by 1983-84 of the medical teachers is estimated to be 12,659. This stock will remain the same during sixth plan period, since no increase in medical educational facilities during the plan period is envisaged.

These teachers include teachers of different specialties. Assuming that the percentage distribution of medical teachers in different specialties recommended by the Medical Council of India for medical colleges with 100 admissions is represented in the stock of medical teachers, it is estimated that by the end of 1983-84 there will be 1,251 teachers in medical specialty, 1,562 in surgical, 625 in obstetrics and gynaecology and 313 in paediatrics.

Thus, we observe that the likely stock of specialist medical manpower under study (professional and teachers) by 1983-84 will be 17,990 in medicine, 7,627 in surgery, 1,462 in obstetrics and gynaecology and 438 in paediatrics.

The above estimates are under estimates as these exclude specialists employed in the State of Jammu & Kashmir and private practitioners. In addition, they do not include under-employed.

Summary

The estimates of stock of specialists obtained by different methods discussed above are summarised in Table 11.

The estimates obtained by each of the three methods have their own limitations. Keeping these in view, it is reasonable to assume that the estimates obtained by Direct Method I, where the data of Professional Associations was used, are the best estimates. However, estimate of stock of Physicians is not available with this method. The available two estimates for this category are at considerable variance from each other which calls for better quality data to obtain a reasonable estimate of the same. These estimates, however, provide at best a range for the stock of physicians.

CHAPTER III

ESTIMATION OF DEMAND

By definition, demand includes those who are in work force plus new employment opportunities created during the time period under consideration. For the purpose of its estimation, the same four specialist categories studied earlier, namely, physicians, surgeons, obstetricians and gynaecologists and paediatricians have been treated. Component approach has been utilized in the study to estimate the demand for each of these specialists where three broad areas of consumption of services of these specialists were identified, namely, medical care, teaching and family welfare. The demand in each of the areas was estimated separately whose sum provided the total demand for a particular specialist category during 1979-84.

Medical Care

Medical care services are provided through primary health centres in rural areas and through hospitals and dispensaries owned by different agencies in urban areas. The specialist services under study are mainly provided through hospitals and by private practitioners. The PHCs and dispensaries do not provide such specialist medical care services except in those institutions which are upgraded into 30 bedded rural hospitals. The beneficiaries are generally referred to hospitals for availing of any specialist services. It is, therefore, assumed that most of the demand for specialist categories under study for medical care is created in hospitals of different sizes.

In India, there are 4,465 hospitals of varying sizes owned by Government, local bodies, voluntary organizations etc. of which 107 are attached to medical colleges. In estimation of demand for specialist categories of medical manpower for medical care, these 107 teaching hospitals have been excluded since the teachers working in medical colleges provide the services in the attached hospitals. These hospitals, however, have been included in a latter section where the demand for teacher-specialists is estimated.

The staffing norms recommended by Jain Committee for hospitals of different sizes and those by Anand are presented in Table 12[6,7].

It has been decided that no expansion of curative services based on specialties and super specialties will be permitted during sixth plan period except in those cases where the need for such expansion is established on the grounds of gross inadequacy[8]. Sixth plan, however, envisages that 400 PHCs will be upgraded to 30 bedded rural hospitals by 1983. This will increase the number of hospitals to 4,865 by 1983-84.

Taking into account the norms stated above and the distribution of non-teaching hospitals by their bed strength (Appendix IV), the demand for specialists in each of the four specialties is estimated. The same are presented in Table 13.

Teachers

We have 106 medical colleges with the admission capacity of about 13,000 per year. Medical Council of India has recommended 135 teachers for every 100 admissions for staffing the various departments of these colleges of which 81 are professors, readers and lecturers with post-graduate qualifications (Appendix II). It indicates that, out of the recommended norm 12 (8.89%) belong to Medicine; 15 (11.1%) to Surgery including ENT; 6 (4.44%) to Obstetrics and Gynaecology and 3 (2.22%) to Paediatrics.

However, for the medical colleges having more than 100 admissions per year the MCI has recommended that "the number of teaching staff will have to be in the ratio of 1:10 students for every 50 additional admissions over 100. There should be two senior teachers of the level of Professor/Associate Professor and three junior teachers of the level of Reader/Assistant Professor in addition to that prescribed in the standard requirement for 100 admissions".

MCI has further recommended that the medical colleges and such other Institutions providing post-graduate training in any specialty should have additional post-graduate teachers as per the norm presented earlier.

Registrars, demonstrators and such other categories of doctors are not included in estimating demand for teachers since the entry requirement to these categories of labour force do not stipulate post-graduate degree/diploma as an essential qualification.

In order to facilitate estimation of demand of teachers in different specialty categories of medical manpower, based on these recommendations, 106 medical colleges have been classified by their admission capacity for M.B.B.S. Course and availability of post-graduate educational facilities. The same are presented in Appendix III.

The admission capacity for post-graduate courses leading to M.D./M.S. and diploma programmes in the concerned specialties have also been worked out. They are 464 for Medicine, 1,026 for Surgery, 683 for Obstetrics and Gynaecology, 256 for Paediatrics.

Taking the norms recommended by MCI in relation to authorised admission capacity, the demand for each of the four categories of specialist manpower has been estimated. It is to be noted that sixth plan does not envisage any further expansion of medical education during 1979-84. The estimates of demand thus obtained for teachers of different specialties are presented in Table 14.

Family Welfare Programme

The current objectives and strategies in family welfare programme envisage that the service facilities for such work will be further extended, the enlisting of cases for family limitation will be carried out only through educational and motivational methods and through community involvement without the use of any compulsion.

During the previous plan periods, a number of organizations for implementation of family welfare programme have been established. There are, at present seven Central Training Institutes, 46 Regional Family Welfare Centres, 24 State Family Welfare Bureaux, 350 District Family Welfare Bureaux with 197 Mobile Centres, 1,827 Urban Family Welfare Centres and 5,229 Rural Family Welfare Centres[9]. In addition to this, the post-partum programme was established in 449 institutions. Except in post-partum programme, the demand for doctors is mainly of the type of General Duty Medical Officers and administrators in various organizations in this programme. Hence, in this study, the demand for specialists in only post-partum programme has been estimated.

Post-Partum Programme

In 1977, there were 449 centres of which 181 belong to type A; 74 belong to type B and 194 belong to type C Centres.

The Government of India have recommended additional staff of one Assistant Professor in Obstetrics and Gynaecology and one lecturer in Paediatrics for teaching hospitals under this programme. One senior medical officer in Obstetrics and Gynaecology has been recommended for non-teaching hospitals/centres in type A. For Centres of type B and C, it is recommended that one medical officer who is a specialist in Obstetrics and Gynaecology should be provided in addition to the available staff. Taking into account of these recommendations, it is estimated that there should be 449 obstetricians and gynaecologists and

104 paediatricians under this programme. Further, this programme would be extended to 75 non-teaching hospitals of type A and 400 taluka and sub-divisional hospitals of type B and C during sixth plan period. With this, the demand for obstetricians and gynaecologists will increase to 924.

Thus, there will be a total demand of 924 obstetricians and gynaecologists and 104 paediatricians by 1983-84 under post-partum programme.

Summary

Taking into account the estimates of demand for different specialist categories of medical manpower for each of the programmes, namely, medical care, teaching and family welfare, it is estimated that, by the end of 1983-84, demand exists for 4,464 physicians, 6,289 surgeons, 4,751 obstetricians and gynaecologists and 842 paediatricians.

We know that a number of specialists of categories under consideration here, are in private practice. With the increase in paying capacity of the population, it is likely that some more would be attracted to private practice in the years to come. It has not been made possible, however, to estimate the demand for such self-employed specialists for want of data.

CHAPTER IV

IMBALANCES - SUPPLY AND DEMAND

The supply of different categories of specialist medical manpower was estimated with the help of three different methods using two sources of data as basis, namely, registered specialists with the professional associations and DGE&T. The estimates based on former source were considered to be better than the others due to reasons discussed elsewhere. This method does not, however, provide the estimate of stock for physicians for want of data required. The two estimates obtained by two other methods for this category are at considerable variance from each other and at best provide a range for the stock of physicians. On the other hand, the estimation of demand has been based on one method, namely, component approach.

Depending upon the estimate of stock that is taken into consideration, the net result in terms of surplus or shortage of different categories of specialists emerges. Table 15 summarises and presents a comparative assessment of estimates of surplus/shortage for each of the four categories of specialist medical manpower.

Though the two estimates of stock of Physicians are rough, the estimate obtained by Direct Method II can be treated as an underestimate and the other an over-estimate. In either case, however, there will be a considerable surplus of Physicians by 1983-84 of atleast 4,238.

Similar situation will be obtained in case of Surgeons also for 1983-84. All the three estimates show surplus, though of varying magnitude. The best of the three indicates that such a surplus would be of the order about 890 by 1983-84.

In the case of Obstetricians and Gynaecologists, while two of the three estimates show surpluses, the third shows a shortage. Considering the relative merits and demerits of data that had gone into their estimation, it is considered that there would be a surplus of Obstetricians and Gynaecologists of about 295 by 1983-84.

Out of the three such estimates available for Paediatricians, two show likelihood of surplus while one shows shortage. Keeping the limitations of the data used for their estimation in view, it is considered that the estimate showing a surplus of 2,084 Paediatricians by 1983-84 is the most reasonable one. An interesting analysis of child health services, carried out recently in terms of implications for their future planning, estimates the stock and demand situation as of 1970[10]. It shows that the requirement for medical manpower to provide child health services in India was of the order of 24,000 doctors in 1970 while the availability was only of the order of about 12,400, thereby indicating a gross inadequacy in their numbers in 1970 itself. However, these estimates will have to be taken with caution in view of the reasons discussed by the authors themselves. Further, they can at best be considered to be the estimates of real need and not effective demand, that too, of all doctors for child health services and not of Paediatricians alone. To conclude, therefore, it is estimated here that there would be a surplus of about 2,087 Paediatricians by 1983-84.

In estimation of stock as well as demand, specialists engaged in private practice have not been taken into consideration in this study because of absolute lack of such data. This, however, is not likely to vitiate the net result, since

i. a large majority of them are in employment in organized sector with only a small percentage in private practice;

ii. that small number in private practice is not likely to increase steeply during 1979-84 particularly because the absorbable capacity of Indian Society is not likely to increase sharply during this period.

In view of these considerations, the stock and demand of different categories of specialists in private practice may balance each other, leaving the final picture unchanged.

While we have a number of sources of basic data to facilitate estimation of stock and demand, their gross inadequacies have been pointed out in the earlier Chapters. Thus, while we have mountains of statistics and statistics, they are hardly of any worth. This calls for a serious effort, through coordination and utilization of all concerned organizations, towards conducting a nation-wide survey of medical manpower. This survey should net all medical manpower located throughout the country in different organizations and in private practice. It is expected to provide a comprehensive picture of medical manpower in India and would serve as a baseline for all future planning efforts.

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CHAPTER V

SUMMARY AND CONCLUSIONS

Based on the analysis of secondary data available with a number of governmental and non-governmental organizations, the supply of and the demand for four categories of specialist medical manpower in India by 1983-84, have been estimated. The categories of specialist medical manpower studied are Physicians, Surgeons, Obstetricians and Gynaecologists and Paediatricians. Three different methods have been used for estimation of supply and one for estimation of demand. Based on the understanding and discussion of relative merits and demerits of sources of data and methods of estimation, it is concluded that, by 1983-84,

i. there is likely to be a surplus of atleast 4,238 Physicians;

ii. Surgeons will be in surplus by about 890;

iii. there would be a surplus of Obstetricians and Gynaecologists to a tune of about 295; and

iv. Paediatricians would be surplus to a tune of about 2,087.

The attention is drawn towards the need for reliable data required for such estimation. A comprehensive baseline survey of medical manpower in India is advocated.

TABLE 1

NUMBER OF SPECIALIST DOCTORS REGISTERED WITH PROFESSIONAL ASSOCIATIONS - DECEMBER 1977

Specialty	Number Registered
Medicine	N.A.
Surgery*	3,426
Obstetrics and Gynaecology	2,950
Paediatrics	1,718

*Surgery includes Orthopaedic (630) and ENT (984).

TABLE 2

ESTIMATED STOCK OF DIFFERENT SPECIALIST CATEGORIES OF MEDICAL MANPOWER BY 1979-84

	Number of Specialists		
	Surgery	Gyna. & Obst.	Paediatrics
1. Registered number (1977)	3,426	2,065	1,718
2. Number available from this stock by:			
1979-80	3,358	2,024	1,684
1980-81	3,324	2,004	1,667
1981-82	3,291	1,984	1,650
1982-83	3,258	1,964	1,634
1983-84	3,225	1,944	1,618
3. a. Out-turn during 1976-77	664	522	221
b. Out-turn during 1979-84	5,312	4,176	1,768
4. Survival from out-turn during 1979-84 in:			
1979-80	1,326	1,042	441
1980-81	1,986	1,560	660
1981-82	2,644	2,076	878
1982-83	3,300	2,590	1,095
1983-84	3,954	3,102	1,311
5. Estimated stock in:			
1979-80	4,684	3,066	2,125
1980-81	5,310	3,564	2,327
1981-82	5,935	4,060	2,528
1982-83	6,558	4,554	2,729
1983-84	7,179	5,046	2,929

Note: Since the number of physicians registered with Associations is not available for the base year (1977), the stock of the same could not be estimated.

TABLE 3

ESTIMATED STOCK OF DIFFERENT SPECIALIST CATEGORIES OF MEDICAL MANPOWER IN 1972

	Number of doctors in specialties of			
	Medicine	Surgery	Obst. & Gyna.	Paediatrician
1. Stock in 1971 of private sector doctors after adjustment for mortality and reitrement	3,743	483	107	40
2. Stock in 1972 of public sector doctors	21,910	7,754	469	136
3. Total stock in 1972 (1 + 2)	25,653	8,237	576	176
4. Percentage with P.G. qualifications in 1972	16.16	18.42	65.48	91.66
5. Estimated stock with P.G. qualifications in 1972	4,146	1,517	379	161

TABLE 4

ESTIMATED STOCK OF DIFFERENT SPECIALIST CATEGORIES OF MEDICAL MANPOWER DURING 1979-84

	Specialists in			
	Medicine	Surgery	Obst. & Gyna.	Paediatrics
Survival from stock of 1972 in:				
1979-80	3,826	1,400	347	147
1980-81	3,788	1,386	344	146
1981-82	3,750	1,372	341	145
1982-83	3,712	1,358	338	144
1983-84	3,675	1,344	335	143
Out-turn during 1972-84	5,138	7,306	5,742	2,425
Survival from out-turn of 1972-84 in:				
1979-80	3,227	4,606	3,612	1,519
1980-81	3,680	5,256	4,120	1,732
1981-82	4,131	5,904	4,626	1,944
1982-83	4,580	6,550	5,130	2,155
1983-84	5,027	7,194	5,632	2,365
Estimated stock in:				
1979-80	7,053	6,006	3,959	1,666
1980-81	7,468	6,642	4,464	1,878
1981-82	7,881	7,276	4,967	2,089
1982-83	8,292	7,908	5,468	2,299
1983-84	8,702	8,538	5,967	2,508

TABLE 5

TREND IN ALLOPATHIC DOCTORS WITH THEIR TYPE OF ACTIVITIES

Year	Public Sector		
	Professional	Teaching	Total
1966	18,945 (77.6)	5,470 (22.4)	24,415
1968	20,871 (77.4)	5,054 (12.8)	26,948
1970	29,738 (78.5)	6,346 (16.7)	37,899
1972	33,303 (78.1)	5,085 (11.9)	42,826
	Private Sector		
1967	3,788 (64.1)	1,655 (28.3)	5,865
1969	3,981 (72.2)	1,014 (18.4)	5,516
1971	4,802 (69.8)	1,033 (15.0)	6,880

TABLE 6

ESTIMATED NUMBER OF PROFESSIONAL MEDICAL PERSONNEL DURING 1979-84, YEAR-WISE

Year	Estimated number of doctors		Estimated number of professionals	
	Public Sector	Private Sector	Public Sector	Private Sector
1979-80	1,09,881	10,076	85,707	6,952
1980-81	1,23,616	10,512	96,420	7,253
1981-82	1,39,068	10,967	1,08,473	7,567
1982-83	1,56,452	11,442	1,22,033	7,895
1983-84	1,76,008	11,937	1,37,286	8,237

TABLE 7

ESTIMATED NUMBER OF DOCTORS IN DIFFERENT SPECIALTIES TO BE IN EMPLOYMENT DURING 1979-84

Year	Number of doctors			
	Medicine	Surgery	Obst. & Gyna.	Paediatrics
1979-80	60,363	18,969	716	84
1980-81	67,472	21,296	798	92
1981-82	75,451	23,912	890	102
1982-83	84,408	26,853	994	113
1983-84	94,464	30,158	1,109	125

TABLE 8

ESTIMATED NUMBER OF SPECIALISTS LIKELY TO BE IN EMPLOYMENT DURING 1979-84

Year	Medicine	Surgery	Obst and Gyna.	Paediatrics
1979-80	10,696	3,815	540	84
1980-81	11,956	4,238	602	92
1981-82	13,370	4,809	671	102
1982-83	14,957	5,400	750	113
1983-84	16,739	6,065	837	125

TABLE 9

DISTRIBUTION OF MEDICAL COLLEGES BY THEIR ADMISSION CAPACITY

Admission capacity	MBBS Course only	P.G. education also	Total
- 100	30	33	63
101 - 150	1	26	27
151 - 200	-	14	14
201 - 250	-	2	2
Total	31	75	106

TABLE 10

STOCK OF SPECIALISTS DURING 1979-84

Year	Number of specialists			
	Medicine	Surgery	Obst. & Gyna.	Paediatrics
1979-80	12,007	5,941	1,191	409
1980-81	13,245	5,838	1,246	414
1981-82	14,646	6,403	1,309	421
1982-83	16,220	6,978	1,382	429
1983-84	17,990	7,627	1,462	438

TABLE 11

DIFFERENT ESTIMATES OF STOCK OF SPECIALISTS DURING 1983-84

	Estimates of stock of			
	Physicians	Surgeons	Obst. & Gyna.	Paediatricians
Direct Method				
- Association's data	N. A.	7,179	5,046	2,929
- DGE&T data	8,702	8,538	5,967	2,508
Indirect Method	17,990	7,627	1,462	438

TABLE 12

NORMS FOR STAFFING OF HOSPITALS OF DIFFERENT SIZES

Hospital bed strength	Staffing pattern for specialists of			
	Medicine	Surgery	Obst. & Gyna.	Paediatrics
50	1	1	1	-
100	1	2	1	-
200	2	4	2	1
300	2	4	2	1
400	2	4	2	1
500	3	5	2	1

TABLE 13

ESTIMATES OF DEMAND FOR SPECIALISTS, 1983-84 - MEDICAL CARE

Specialists	Demand by 1983-84
Medicine	3, 102
Surgery	4, 233
Obstetrics and Gynaecology	3, 042
Paediatrics	329

TABLE 14

ESTIMATES OF DEMAND FOR TEACHERS, 1983-84 WITH POST-GRADUATE QUALIFICATIONS

Specialties	Number required
Medicine	1, 362
Surgery	2, 056
Obstetrics and Gynaecology	785
Paediatrics	409

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TABLE 15

COMPARATIVE STATEMENT OF ESTIMATES OF SURPLUS OR SHORTAGE OF SPECIALIST CATEGORIES OF MEDICAL MANPOWER BASED ON DIFFERENT ESTIMATES OF STOCK BY 1983-84

Specialists	Stock			Demand	Shortage/Surplus		
	Direct Method 1	Direct Method 2	Indirect Method		Direct Method 1	Direct Method 2	Indirect Method
Physician	N. A.	8,702	17,990	4,464	N. A.	+ 4,238	+ 13,526
Surgeon	7,179	8,538	7,627	6,289	+ 890	+ 2,249	+ 1,338
Obstetricians and Gynaecologists	5,046	5,967	1,462	4,751	+ 295	+ 1,216	- 3,289
Paediatricians	2,929	2,508	438	842	+ 2,087	+ 1,666	- 404

+ indicates surplus

- indicates shortage

APPENDIX I

LIST OF SPECIALIST ASSOCIATIONS

1. The Association of Surgeons of India, Adam Road, Chepauk, Madras.

2. Federation of Obstetrics and Gynaecological Societies of India, Dr. A. M. Purandare Marg, Bombay.

3. Indian Academy of Paediatrics, Kailas Darshan, Kennedy Bridge, Bombay.

4. Indian Orthopaedic Association, Department of Orthopaedics, AIIMS, New Delhi.

5. Association of Thoracic Surgeons, S. M. Hospital & Seth G. S. Medical College, Bombay.

6. Association of Plastic Surgeons of India, AIIMS, New Delhi.

7. Association of Otolaryngologists of India, Bombay.

APPENDIX II

RECOMMENDATION OF MEDICAL COUNCIL OF INDIA - FOR THE STAFFING PATTERN OF MEDICAL COLLEGES WITH ADMISSION CAPACITY OF 100 PER YEAR IN M. B. B. S. COURSE (1976-77)

Department	Staff recommended by M. C. I.			
	P	R	L	D/T
Anatomy	1	2	3	5
Physiology	1	2	3	5
Biochemistry	1	1	2	2
Pharmacology	1	1	2	4
Pathology	1	3	4	9
Microbiology	1	1	2	3
Preventive & Social Medicine	1	1	2	2
Forensic Medicine	1	1	1	2
Medicine	4	-	4	4
Surgery	4	-	4	4
Obstetrics & Gynaecology	2	-	2	2
Ophthalmology	1	-	1	1
ENT	1	-	1	1
Paediatrics	1	-	1	1
Anaesthesiology	1	2	2	4
Radiology	1	2	2	2
T. B.	1	-	1	1
Skin & V. D.	1	-	1	1
Psychiatry	1	-	1	1
	26	16	39	54

P - Professor R - Assoc. Prof. /Reader

L - Asstt. Prof. /Lecturer D/T - Demonstrator/Tutor

APPENDIX III

DISTRIBUTION OF MEDICAL COLLEGES BY THEIR ADMISSION CAPACITY IN M. B. B. S. COURSE

Admission capacity in M. B. B. S. Course	Total number of medical colleges	Number of Medical Colleges having P. G. training in			
		Medicine	Surgery*	Obst. & Gyna.	Paediatrics
- 100	63	19	23	23	14
101 - 150	27	13	18	14	13
151 - 200	14	13	12	9	10
201 - 250	2	2	2	2	1
Total	106	47	55	48	38
P. G. Institution	12	8	8	6	6
Total	-	55	63	54	44

* includes Orthopaedic, ENT and General Surgery.

APPENDIX IV

DISTRIBUTION OF HOSPITALS ACCORDING TO SIZE AND TYPE (TEACHING AND NON-TEACHING)

No. of beds	No. of hospitals attached to Medical Colleges	No. of non-teaching hospitals	Total no. of hospitals
- 25	-	2,045	2,045
26 - 50	-	894	894
51 - 75	-	337	337
76 - 100	1	280	281
101 - 200	-	473	473
201 - 300	4	160	164
301 - 400	7	74	81
401 - 500	8	35	43
501 - 600	10	20	30
601 - 700	14	18	32
700 +	63	22	85
Total	107	4,358	4,465

Source: Health Statistics of India (1977) Central Bureau of Health Intelligence, DGHS, Ministry of Health and Family Welfare, Government of India, New Delhi.

Directory of Hospitals (1975) Central Bureau of Health Intelligence, DGHS, Ministry of Health and Family Welfare, Government of India, New Delhi.

APPENDIX V

DISTRIBUTION OF MEDICAL PERSONNEL IN DIFFERENT SPECIALTY GROUPS IN PUBLIC AND PRIVATE SECTOR

Year	Number of doctors in specialties								Total professional group	
	Medicine		Surgery		Obst. & Gyna.		Paediatricians			
	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
1966	10,146 (53.6)		5,662 (29.8)		70 (0.37)		28 (.15)		18,945	
1967		2,440 (64.9)		463 (12.3)		14 (0.37)		1 (6.02)		3,758
1968	12,398 (59.4)		5,746 (27.5)		67 (0.32)		11 (.05)		20,871	
1969		2,946 (74.0)		325 (8.2)		-		-		3,981
1970	16,718 (56.2)		8,299 (27.9)		262 (.88)		40 (.13)		29,738	
1971		3,689 (76.8)		373 (7.8)		62 (1.3)		17 (.35)		4,802
1972	21,458 (64.2)		7,189 (21.5)		243 (.73)		23 (.07)		33,404	

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